Long-Term Quantitative River Shore Monitoring using a Portable Imaging Suite

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Environmental Engineering Projects

Objectives: Quantify long-term effects of environmental engineering projects on the environment such as change of vegetation, change of morphology of the river bed, sediment deposition.

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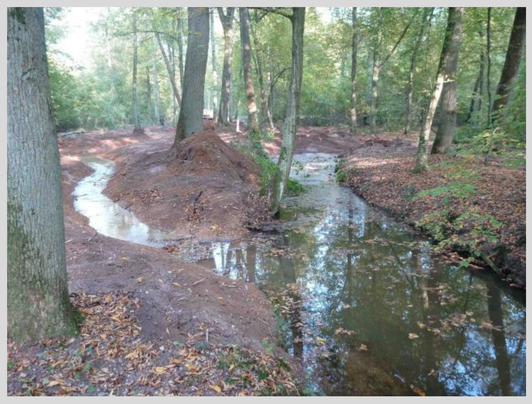

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Temporally-aligned Maps

Objectives: Construct a 3D model of the environment using a portable sensor suite, temporally aligned across different seasons:

- 3D interactive color Map
- Human evaluation through time jump
- Automatic generation of statistical data, such as quantification of green areas
- Automatic detection of river bank erosion and change in water level

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- **Region Lorraine**

State-of-the-art Hardware

Specifications: Three wide angle cameras, inertial measurement units, GPS, and a laser rangefinder; all packed in a single human-portable sensor suite capable of one hour of continuous data acquisition.

FLEA3 2.0 MP 60 FPS

VN-200 Rugged INS Unit

UTM-30LX Laser Rangefinder

Other Scientific Contributions

Scientific Scope: The challenges brought forward by the inherent nature of the project are interesting yet non-exhausted in literature. Scene perception, spatio-temporal registration, geometric three dimensional reconstruction and other perception related topics are all examples of hot topics currently being addressed at different time frames.